

U.S. Application No. 10/538,984
Attorney Docket No. 2003B133
Reply to O.A. of 6/8/06 & NNA of 12/6/06
Amendment dated 12/19/06

RECEIVED
CENTRAL FAX CENTER
DEC 19 2006

REMARKS

Reconsideration of the above identified application is respectfully requested.

Claims 1-113 are before the examiner. Claims 63, 65-69 have been cancelled. Claims 70 - 113 are new and do not contain new matter. Support for new claims 70 to 113 is found at originally filed claims 1 to 69.

The specification has been amended to incorporate the language of claims 52, 53, 54 and 62. Likewise the word "polymerized" is changed to the word "produced" in the text and applicable claims. Applicant submits no new matter has been added as this is a correction of a typographical error.

This invention is directed toward a new and unobvious polymerization process. The polymerization of isoolefins such as isobutene to produce butyl rubber is well known and since the beginning of the technology the commercial process comprised employing MeCl as the diluent. The process, going back to WWII, always required constant cleaning of the reactors because of severe reactor fouling as a result of agglomeration and flocculation. The cleaning process is costly and greatly adds to the cost of the product. Additionally it is well known that chlorohydrocarbons such as MeCl present are undesirable. There has been a long felt need in the art to improve the polymerization process so as to eliminate or greatly reduce the possible contamination cause by the chlorohydrocarbon as well as to greatly reduce the tendency for the polymerization process to foul the reactor. It has now been discovered that a new class of diluents greatly reduces the fouling tendency and contamination. The process involves employing in the polymerization one or more Lewis acid(s), one or more initiator(s), and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) for the homo and co-polymerization of isoolefins. An aspect of the invention is to employ with the HFC's both Lewis acid and an initiator.

Claims 1-13, 19, 27-29, 34, 36, 39-41, 43-47, 61-64 and 66-69 have been rejected under 35 U.S.C. §102 (b) as anticipated by, or in the alternative, under 35 U.S.C. §103 (a) as obvious over Welch et al. This rejection is respectfully traversed. It is respectfully

U.S. Application No. 10/538,984
Attorney Docket No. 2003B133
Reply to O.A. of 6/8/06 & NNA of 12/6/06
Amendment dated 12/19/06

submitted that Welch et al. fail as anticipation since no where in the four corners of Welch is there any disclosure of an initiator. The examiner suggests that Welch et al. employs methyl chloride as an initiator (page 5, 1st paragraph). It is respectfully submitted that MeCl is not an initiator but rather the diluent. At page 5, line 5 the Examiner recognizes this through his language "methyl chloride diluted reactants." Absent such disclosure of the initiators it is respectfully submitted that Welch et al. fail to anticipate the instant claims. It is furthermore submitted that the claims are not obvious in the sense of 37 U.S.C. § 103 since there is no suggestion to employ such initiators in the Welch et al. system. Withdrawal of the rejection is respectfully asked.

Claim 1-22, 27, 28, 34, 36-38 and 48 -52 have been rejected under 35 U.S.C. § 103 as being unpatentable over Falchi et al. This rejection is respectfully traversed. The examiner suggests that Falchi et al. disclose a polymerization process comprising the steps of contacting alpha-olefin with a defined quantity of solvent and a primary transition metal catalyst I combination with a Lewis Acid co catalyst. Falchi et al. fail to disclose or suggest the use of the initiators as instantly claimed. The absence of such a teaching regarding the initiators removes the instant claims from being obvious over Falchi et al. Withdrawal of the rejection is respectfully asked.

Claims 1-22, 27, 28, 34, 36-41, 48-59, 61, 62 have been rejected under 35 U.S.C. § 103 (a) as being unpatentable over Schrage et al. This rejection is respectfully traversed. As in each of the above references relied upon by the examiner, Schrage et al. fails to disclose, suggest or make obvious an initiator as instantly claimed. Absent any disclosure of initiators it is respectfully submitted that Schrage et al. fails as a reference under 35 U.S.C. § 103 (a). Withdrawal of the rejection is respectfully requested.

Claims 63 and 66-69 having been cancelled eliminates the need to comment on WO 00/04061.

The examiner has objected to the specification for failing to provide proper antecedent basis for claims 52 and 62. Applicant has amended the language of claims 52 and 62 into the specification. Likewise Applicant has amended claims 52, 53, 54, 60 and 20 to include

U.S. Application No. 10/538,984
Attorney Docket No. 2003B133
Reply to O.A. of 6/8/06 & NNA of 12/6/06
Amendment dated 12/19/06

the word produced in place of the word polymerized. Applicant submits that no new matter has been added. Withdrawal of this objection is requested.

The examiner has objected to claim 65. This claim has been cancelled.

Claims 12, 13, 63, and 66-69 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 63 and 66-69 have been cancelled. In view of the amendments to claims 12 and 13, it is respectfully submitted that this rejection should be withdrawn.

Claims 23-26, 30-33, 35, 42 and 60 are objected as being dependent of a rejected base claim, but would be allowable if rewritten in independent form. Each has been rewritten in independent form. Withdrawal of this objection is requested.

In view of the above amendments and remarks, it is respectfully submitted that the claims in this application present patentable subject matter. Prompt notice of allowance is respectfully solicited.

Applicants invite the Examiner to telephone the undersigned attorney, if there are any issues outstanding which have not been presented to the Examiner's satisfaction.

The Commissioner is hereby authorized to charge any additional fees which may be required during the pendency of this case, or credit any overpayment, to Deposit Account Number 05-1712.

Respectfully submitted,

12/19/2006
Date:

Xiaobing Feng
Xiaobing Feng
Registration No. 57,231
Attorney for Applicant

ExxonMobil Chemical Company
Law Technology Department
P.O. Box 2149
Baytown, Texas 77522-2149
Office: 281-834-0355
Facsimile: 281-834-2495